

2017-03-13

# Effect of Ownership Structure on Firm Stock Return Performance: Evidence from the Egyptian Stock Market

El-Masry, AA

<http://hdl.handle.net/10026.1/10726>

---

International Research Journal of Finance and Economics

EuroJournals

---

*All content in PEARL is protected by copyright law. Author manuscripts are made available in accordance with publisher policies. Please cite only the published version using the details provided on the item record or document. In the absence of an open licence (e.g. Creative Commons), permissions for further reuse of content should be sought from the publisher or author.*

# Effect of Ownership Structure on Firm Stock Return Performance: Evidence from the Egyptian Stock Market

**Amal S. ElGhouty**

*Corresponding Author, Modern Sciences & Arts University, Egypt*

E-mail: aasoliman1@msa.eun.eg

**Ahmed A. El-Masry**

*University of Plymouth, UK, Mansoura University, Egypt*

*Umm Al-Qura University, Saudi Arabia*

E-mail: ahmed.el-masry@plymouth.ac.uk

## Abstract

We investigate the impact of institutional ownership and ownership concentration on firm stock return performance using panel data model. Our main ownership measures include; percentage of institutional ownership held by different institutions in a firm and percentage of a firm's outstanding stocks held by the largest three block holders. We find that there is no significant relationship between either institutional ownership or ownership concentration and both ex post and ex ante return. Also, we find that there is negative and significant relationship between institutional ownership represented by some institutions and ex post risk, while the relationship is negative and significant only between institutional ownership by employee associations and ex ante risk. Ownership concentration has no effect on ex post risk but it has a positive and significant effect on ex ante risk. The results are consistent with some past studies from the literature.

**Keywords:** Ownership, stock return, performance, ex post risk, ex ante risk, Egypt

**JEL Classification:** G32

## 1. Introduction

The effect of institutional ownership and ownership concentration on the firm's stock return and volatility has long been an interesting issue in the international business literature. A lot of debate has been going on regarding the relationship between institutional ownership, ownership concentration, return and risk. On one hand, Institutional investors have become very dominant in the world market today, and their role has been very significant. Institutional investors are defined as specialized financial institutions, which channel savings collectively on behalf of other investors to achieve a specific objective in terms of limited risk and maximum return (Davis, 2001). Another wider definition, based mainly on the theory of the firm, is that institutional investors are investment cooperation's set up to minimize transaction costs between investors, and accomplished in a professional method. Since the transaction costs differ for different types of investors, several types of institutional investors have emerged. What characterize them is that they are not physical persons. Instead, they are legal entities, and these legal forms vary among institutional investors. They may act independently or as a part of a large group as in the case of mutual funds as an example (Celik and Isaksson, 2013). Today, various kinds of institutional investors deal with different markets and clients, and for various purposes. Therefore,

institutional investors are heterogeneous group. They are different in terms of contractual relations between the owners of the assets and the asset managers (Bjuggren et al., 2007).

On the other hand, ownership concentration is measured as the percentage of a firm's outstanding stocks held by the largest five institutional investors. In the USA, ownership concentration has not increased as much as the growth in institutional ownership because institutional investors have the tendency to diversify their portfolios as they increase to more firms. This is actually due to the obstacles faced by some institutions, imposed by the USA legal structure that prohibits them from holding sizeable shares (Edwards and Hubbard, 2000). In the USA, institutional investors have very powerful effect on the financial markets. During the period from March 1980 until December 1996, the holdings by institutions in the USA increased from \$253 billion to \$3.98 trillion (Gompers and Metrick, 2001). The reports by the Federal Reserve Board Flow of Funds stated that institutional ownership in the publicly traded companies in the USA has increased from 10% in the 1950s to above 62% in 2009 (Belghitar et al., 2011).

A report by the International Monetary Fund in 2005 mentioned that the assets under the control of institutions have increased three times since the mid of 1990s, and that institutional investors have become now the dominant players in most developed countries. In addition, institutional investors began to be very dominant in OECD countries, recording 6.6% annual growth in assets in the period from 1995-2005, or about 40.3 trillion US dollars in 2005 and 162.2% of GDP (Gonnard et al., 2008). Moreover, the trend of institutional ownership has been increasing in emerging countries too as stated by Khorana et al. (2005). This institutionalization of stock ownership and the consequences on stock return and its performance make the subject of institutional investors of great importance to the stock market experts (Belghitar et al., 2011). A study conducted by Edwards and Hubbard (2000), based on their OLS regression results, finds that institutional ownership is concentrated more in large companies with high stock prices and high liquidity. Also, they prefer investing in companies with high market-to-book ratios, and those listed in the S&P 500 index. While, their existence is very limited in companies with more volatile stock return, and those that pay high dividends. Actually, this is not the case in other models that got completely different results. Sias (1996) finds a strong positive association between the level of institutional ownership and stock return volatility, after accounting for capitalization.

A lot of debate had been going on regarding the relationship between institutional ownership and stock volatility. Rubin and Smith (2009) find a negative correlation between the level of institutional ownership and the volatility of stock return, depending on the firm's dividend policy in the USA. Volatility, in specific, also represents much of concern to us, since stock market volatility reflects "the information processing mechanism of investors and some noise coming from liquidity traders". Higher volatility is therefore linked to a growing volume of news or a greater level of uncertainty about the future state of the economy. "Inconveniences such as hedging against large and more clustered downswings have to be borne by individual investors". Extreme volatile problems can threaten the smooth functioning of financial markets if liquidity dries up or hedging becomes too costly. As a result, the economy will become more vulnerable to risks resulting from tensions in the financial markets and, especially, stock markets in a high volatility scenario (Werner and Stapf, 2003). It was also mentioned that the rise of institutional ownership might be an important factor affecting the upward increase in idiosyncratic volatility in recent years in USA. If institutional investors make decisions in similar ways as individuals and rely on similar information, then shocks to institutional behavior may be an important factor driving increased firm-level volatility (Bernasek, 2014).

In Egypt, the country under study, the institutional ownership became very dominant, and plays a crucial role in the financial market. According to the EGX Quarterly Report, during the first quarter of 2010, the institutions accounted for 66.14 % of the total value of trade, and they were net buyers, with a net equity of 361.80 million pounds. In an early study done by Demsetz and Lehn (1985), they realize with empirical evidence that ownership concentration is normally associated with both high return and high stock price volatility. On the contrary, in their study of the financial valuation of the German model, Clark and Wojcik (2005) find that the relationship between ownership concentration

and stock market return is negative. In addition, a study by Azzam (2010) examines the relationship between ownership concentration and stock return volatility and how it is affected by the dividend policy of the firm. The results show that ownership concentration has a negative impact on stock volatility.

The majority of literature on institutional ownership and ownership concentration and their effect on stock return and volatility dealt only with developed economies and large emerging economies. Small emerging economies such as Egypt are ignored in literature. This paper fills part of this gap by examining the effect of institutional ownership and ownership concentration on both ex post and ex ante return and volatilities of stocks listed in Egyptian Stock market.

The main objectives of the study are to evaluate the effect of institutional ownership on ex-post and ex-ante return and risk in the Egyptian stock market. Another objective is to evaluate the effect of ownership concentration on ex-post and ex-ante return and risk in the Egyptian stock market. These objectives are described in more details in the hypotheses section. Our tests are conducted within a panel data model. We find six main results. First, our findings, based on the aggregate sample, confirm that institutional ownership as well as ownership concentration has no effect on ex post return. Second, institutional ownership has no effect on ex ante return but ownership concentration has a positive and significant effect on ex ante return. Third, institutional ownership represented by top management and individuals have a negative and significant effect on ex post risk, while ownership concentration has no effect on ex post risk. Fourth, institutional ownership has no significant effect on ex ante risk except for employee associations that have positive and significant effect on ex ante risk, while ownership concentration has a positive effect on ex ante risk.

The remainder of this paper is organized as follows: Section 2 covers the literature review and hypotheses development. Section 3 discusses the data and methodology. Section 4 presents the results and examines the robustness of the findings. Section 5 concludes.

## **2. Hypotheses Development**

### **2.1 Institutional Ownership, Ex Post and Ex Ante Return**

Old studies that tested the relationship between institutional ownership and stock return conclude three main results. First, institutional investors are “momentum traders” and they have tendency to be guided by the historical prices (Grinblatt et al., 1995). Second, mutual funds as a category of institutions sometimes engage in institutional “herding” (Wermers, 1999). Third, the coexistent relationship between changes in institutional ownership and stock return is more solid than the “trend chasing effect”<sup>(1)</sup> (Nofsinger and Sias, 1999). Previous work done by [Grinblatt and Titman (1989), Grinblatt and Titman (1993), Grinblatt et al. (1995), Jones et al. (1999), Nofsinger & Sias (1999), Wermers (1999,2000), Sias et al. (2002), Parrino et al. (2002)] has showed that this relationship is positive with regards to the return during the past and same quarters. While, it is positive but weak with regards to the future return.

While Gompers and Metrick (2001) test the ability of institutional ownership in forecasting the stock return, they find that the number of institutional holdings has a significant positive forecasting power of return in the subsequent quarter, while changes in institutional ownership have insignificant effect on next quarter return. Their study is conducted in the USA and they cover quarterly data over the period from 1989 until 1996. They say that this positive relationship can be due to the experience of institutions which is, of course, better than the individuals. They are smart enough to choose the stocks with higher expected return. This result contradicts with Sias (2004) who finds a weak positive correlation between changes in institutional ownership and return in the next two quarters. Yet, similar to most past studies, Sias (2004) finds changes in institutional ownership positively related to the same and ex-post quarter return. His results tilt more towards the conception that institutional demand is more positively correlated to previous institutional demand than ex-post return.

---

<sup>(1)</sup> Market participation increases following an increase in the stock price and vice versa (Orosel, 1998).

Gompers and Metrick (2001) conduct an analysis of the demand by institutional investors for stocks and the consequences on stock prices and return in a study under the name of “Institutional Investors and Equity Prices”. They are really concerned about the institutions as a separate group of investors, who abide by the prudent man rules. That’s why they demand stocks with certain characteristics that are assumed to be more liquid, have higher historical return, less volatile and included in the S&P index. Another explanation added to the above regarding the positive relationship between institutional ownership and future stock return, is the increase in the institutional share of the market, that leads to “demand shocks”<sup>(2)</sup> in the stocks favored by institutions. Demand shocks influence stock prices, and consequently the “contemporaneous” return. Thus, in case of the validity of the demand shocks explanation, it is expected that institutional ownership in the preceding period could be able to predict return better than the change in institutional ownership. In testing the two explanations, the results support more the demand shocks explanation in determining the ability of institutional ownership to forecast stock return. There is no supporting proof for the smart institutions explanation (Gompers & Metrick, 2001).

Similar to Gompers and Metrick (2001), Ali et al. (2002) find a strong positive association between changes in institutional ownership during a certain quarter and the three-day abnormal return during the next quarter, which means that some institutions are well informed to forecast the future return. In addition, this positive association is higher for ownership by institutions such as: independent investment advisors, investment companies, insurance companies and banks than for institutions like; pension funds, college and university endowments, due to the short-term focus by the former institutions mentioned. Ali et al. (2002) think of one reason for this positive association, which could be the combination between “post-earnings-announcement drift”<sup>(3)</sup> and “window dressing by institutions”<sup>(4)</sup>. Another possible reason, as documented by the authors, for this positive association, is that institutions are momentum traders, something that is approved by Sias et al. (2006) as mentioned later. Yet, the results they obtain do not coincide with these two possibilities. Even the risk factors such as: size and book-to-market are not the reasons behind this positive association. It remains that the kind of information obtained by these short-term focus institutions allow them to earn abnormal return in the future. The source of this information is not clear for the authors, since the Securities and Exchange Commission (SEC) prohibits “selective disclosure of material information”. It has been demonstrated, by Lin et al. (2007), that institutional investors have informational advantages over retail investors in IPO auctions in Taiwan.

Griffin et al. (2003) think of one potential explanation for the strong relationship between changes in institutional ownership and ex-post return. They say that institutions and individuals react to the price variations in a completely different manner and this reflects on their trading pattern. It is evident that institutions react to the positive return movements by purchasing more, while individuals respond to the same movements by selling. Their results furthermore show that the relationship between variations in institutional ownership and stock return is very strong and positive at the daily level.

In another paper, it has been noted that there is a strong and positive relationship between changes in institutional ownership and the same quarterly stock return (Sias et al., 2006). They say also that this positive correlation could be because institutions have better access to information so they can find the right time to trade. Another explanation is that institutional investors have the tendency to be “Short-term Momentum Traders”<sup>(5)</sup>. Moreover, the activity of buying and selling by institutions as a

---

<sup>(2)</sup> Demand shocks can be the result of institutional herding. These shocks would come as a simultaneous relationship between variations in Institutional ownership and stock return (Wermers, 1999; Nofsinger and Sias, 1999).

<sup>(3)</sup> In Financial Economics **post-earnings-announcement drift**, or PEAD is the “tendency for a stock’s cumulative abnormal returns to drift in the direction of an earnings surprise for several weeks (even several months) following an earnings announcement” (Bernard and Thomas, 1989).

<sup>(4)</sup> Window dressing is the buying of stocks with good performance in the recent periods (Bildersee and Kahn, 1987).

<sup>(5)</sup> Institutional momentum trading is a certain type of herding, where the investors herd by selling stocks with low return and buying those with high return (Sias, 2004). Grinblatt et al. (1995) have noticed strong momentum trading by mutual

whole tends to have immediate effect on return. In addition, it has been noted that institutional investors have the ability to predict intra-quarter return, which means that the stocks purchased by institutional investors will have high performance than the stocks sold by them. The ability to forecast by institutional investors can explain the high correlation between changes in institutional ownership and the same quarterly return. In summary, it is evident that the variations in aggregate institutional ownership have significant positive effects on stock return, since institutional investors have better access to information than individual investors. On the contrary, Cai et al. (2000) find that changes in institutional ownership do not predict the stock return.

One important point has to be mentioned here, which is consistent with the previous studies. There is a strong positive correlation between changes in institutional ownership and stock return during the same and past quarter for all categories of institutional investors. Just for mutual funds and independent advisors, there is a strong positive relationship between variations in their ownership and future return, as measured by the following quarter. This means that these institutions have better access than the others to information and they might “exploit return momentum” (Sias et al., 2006). Belghitar et al. (2011) have conducted a study on USA listed nonfinancial firms on NYSE, AMEX and Nasdaq for the period from 2002-2009. Their results show negative relationship between the yearly average daily stock return and institutional ownership, which proves the prudent behavior of the institutional investors. Moreover, there appear to be a positive relationship between strategic institutional ownership and stock performance.

The study by Chen et al. (2013) analyzes the effect of foreign institutional ownership on firm-level stock return volatility in China between 1998 and 2008. The empirical results show that share ownership by foreign institutions increases firm-level stock return volatility, even after controlling for firm size, turnover, and leverage, and correcting for endogeneity. Furthermore, they document a positive relationship between domestic shareholdings (individual, institutional, and governmental) and firm-level stock return volatility. The study by Alzeaiden and AL-Rawash (2014) however, could not provide a significant relationship between the individual and institutional shareholder on one hand, and share price volatility on the other, based on their analysis of 51 Jordanian companies between 2005 and 2009. A panel data method is employed with two empirical models OLS and SUR (seemingly unrelated regression). Another study by Hassanzadeh et al. (2013) examines the relationship between institutional ownership and stock return fluctuations in Iran during the period 2006-2010. It is one of the few studies done on emerging economies. The results of their study support a positive relationship between institutional ownership and stock return fluctuations.

Moghaddam et al. (2014) have studied the effect of institutional investors ownership on stock returns for companies listed in Tehran Stock Exchange for the period from 2008-2012. They calculated the percentage of ownership institutional investors using the total number of shares in hand of banks and insurance, holding and investment companies, pension funds, finance companies and investment funds, institutions and public companies divided by the company's outstanding total shares and stock returns was measured through dividends and share price total return. They used control variables such as firm size, firm growth, financial leverage, type of industry and year. They found a significant relationship between institutional investors and stock return at 95% confidence level.

A recent study by Gao et al. (2015) finds that stock pairs with common institutional investors can be used to predict subsequent returns, while stock pairs without common institutional investors yield insignificant predictability. The overall picture suggests that by adjusting their portfolios in systematic ways, institutional investors themselves affect stock returns and covariances and thus can stimulate return predictability. Their study is limited to economically unrelated stocks in order to focus on the role of common institutional investment. They have included pairs of stocks from the same or related industries to strengthen the predictability results. Another recent study by Teng-Ching et al. (2016) investigates the effect of institutional herding on the relationship between risk and return. They

find that the behavior of institutional investors can be used as an explanation for the risk-return relationship, especially foreign institutional investors. Also, the empirical evidence supports the impact of quintile ranking of institutional herding on the risk-return relationship, which means that the stronger the institutional herding, the greater the explanatory power for the risk-return relationship.

In summary, it is evident that the studies conducted on the relationship between institutional ownership and either ex post return or future return have different results. Most studies examine the relationship between the level or changes of institutional ownership and both the past and contemporaneous return. Little emphasis is given to the relationship between institutional ownership and future return. It is logical to have these differences since each study is done using different sample periods and sometimes, different countries under study. What is important, are the reasons mentioned to justify the underlying relationship. Accordingly, we propose the following hypotheses:

**Hypothesis 1a:** There is a positive relationship between institutional ownership and ex post return.

**Hypothesis 1b:** There is a positive relationship between institutional ownership and ex ante return.

## 2.2 Institutional Ownership, Ex Post and Ex Ante Risk

Sias (1996) conducts one of the first studies, which investigates the relationship between institutional ownership and volatility in 1996. He has two hypotheses in mind if a positive relationship exists between the two variables. The first one is that institutional investors might be attracted to more riskier securities, believing that they can have higher market performance, which means that higher volatility will result in more institutional holdings. Actually, the empirical evidence is very weak with regards to this respect. The second hypothesis is the other way around, the high volatility will be the result of more institutional ownership. Actually, most academic work do not support this view because it has been known that with more institutional ownership, there will be more stability in the financial markets. This means that the increase in institutional ownership will lead to less volatility in the market.

Other researchers (e.g. Rubin and Smith, 2009) find that, on the contrary, more institutional holdings lead to an increase in volatility, something, which is proved and accepted by Sias (1996) in his study. He tests the “contemporaneous” relationship between volatility and institutional ownership, and he finds that volatility of stocks increases following an increase in institutional ownership, with capitalization held constant. His analysis covers 15 years, which is the period between 1977 until 1991, and he has collected the weekly return, percentage held by institutional investors and the market capitalizations for all the securities listed in New York Stock Exchange for that purpose. In addition to the result reached by Sias mentioned above, he finds that the changes in volatility can be forecasted by the variation in the lag changes in institutional ownership. Another study points to the relationship between institutional ownership and stock price volatility and how they are affected by the company’s disclosure practices (Bushee and Noe, 2000). Guided by previous research, more corporate disclosure practices lead to increase in the percentages of institutional ownership (Healy and Palepu, 2001). Moreover, as reported by Potter (1992), more institutional ownership is accompanied by high stock return volatility. This means that there is an indirect relationship between the disclosure practices and stock return volatility through the attraction of more institutional investors.

Some studies find that the direction of the relationship between institutional ownership and stock volatility is strongly affected by the company’s dividend policy. Rubin and Smith (2009) have proved that this relationship is positive for the dividend paying stocks but negative for the non-dividend paying stocks. The lower volatility due to the high level of institutional ownership, is due to institutional investors’ easy access to information on prices, something called “Institutional Preference hypothesis” (West, 1988). It refers to the institutional investors’ preference to invest a large component of their portfolios in low risk non-dividend paying shares. The reason is that most institutions follow the “Prudent” man rules, since they invest on behalf of other people.

On the other hand, the “Institutional Turnover Hypothesis” could explain the positive relationship between institutional ownership and stock volatility in the dividend paying stocks. This hypothesis refers to the high frequency of portfolios’ turnover by institutional investors, more than individual investors. Karpoff (1987) says that this high portfolio turnover indeed has a positive impact on stock volatility. Moreover, institutional herding is closely associated with dividend paying stocks than non-dividend paying stocks, meaning that institutional investors follow the same pattern in buying and selling stocks (Sias, 2004). The study of Azzam (2010) shows that, for the period from 2004 until 2007, private institutional ownership has a positive impact on stock volatility for the non-dividend paying stocks only because of the institutional herding effect unlike the dividend paying stocks. On the other hand, ownership by public companies, individuals, insurance companies and top management has insignificant impact on stock volatility. In summary, the study shows that the dividend policy has a significant effect on the direction of the relationship between institutional ownership and stock volatility. A recent study by Jafarineja and Ngo (2015) finds that the high proportions of institutional shareholdings in a sample of US listed firms in the period from 1998 to 2012 are accompanied by lower firm idiosyncratic risk.

Although most academic theories suggest a negative relationship between institutional ownership and volatility, the empirical evidence was different. Most studies document a positive relationship between institutional ownership and volatility. Researchers such as: Potter (1992) and Sias (1996) rationalize this relationship by the temptation of institutional investors to invest in more risky securities since they have higher market performance, added to this, their ability to get better information about these risky securities. Lee (1992) added that trading in larger volumes by institutions results in higher volatility. Moreover, the herding behavior, followed by institutional investors, could result in frequent price alterations and increase in volatility. Accordingly, we propose the following hypotheses:

**Hypothesis 2a:** There is a negative relationship between institutional ownership and ex post risk.

**Hypothesis 2b:** There is a negative relationship between institutional ownership and ex ante risk.

### **2.3 Ownership Concentration, Ex Post and Ex Ante Return**

Actually, it is not easy to identify a significant relationship between ownership concentration and stock market return. There is the attitude of the investors who may or may not be rational in some instances (see Shiller 2000; Shleifer 2000). Thus, it is difficult to determine a certain and concrete relation between the two variables under study (Clark and Wojcik, 2005). In an early study done by Demsetz and Lehn (1985), they realize with empirical evidence that ownership concentration is normally associated with high stock price volatility. In their study of the financial valuation of the German model, Clark and Wojcik (2005) find that the relationship between ownership concentration and stock market return is negative. They have conducted their study by analyzing the companies of the DAX100 stock market index from 1997-2001. The DAX100 consists of two indices, DAX30 and MDAX<sup>6</sup>. The DAX30 contains the top 30 highly traded German companies in Frankfurt Stock Exchange according to their size or market capitalization. The other 70 companies, which are considered the mid-capitalization firms, are included in the MDAX. Over the period under study, DAX30 represented about 85% of the total market capitalization and 96% of the turnover of DAX100 (Deutsche Borse 2003).

Clark and Wojcik (2005) extend their analysis of the relationship between ownership concentration and stock market return by including some control variables. One of these control variables is the size of the company. Past literature reached the result that there is a negative relationship between ownership concentration and size. This can be explained by the large amounts of capital needed by large companies, something that cannot be provided except by diversified sources of capital (Demsetz and Lehn, 1985; Morck et al., 2000). In summary, it seems that identifying a

---

<sup>(6)</sup> In March 2003, the structure of the German stock market indices witnessed a change, and MDAX was reduced from 70 to 50 firms covering only the traditional industries.



significant relationship between ownership concentration and stock return is difficult due to the irrational behavior of investors. Accordingly, we propose the following hypotheses:

**Hypothesis 3a:** Ownership concentration is positively related to ex post return.

**Hypothesis 3b:** Ownership concentration has no effect on ex ante return.

## 2.4 Ownership Concentration, Ex Post and Ex Ante Risk

In an early study done by Demsetz and Lehn (1985), they realize with empirical evidence that ownership concentration is normally associated with high stock price volatility. Clark and Wojcik (2005) find that the effect of ownership concentration on adjusted return is stronger than that for unadjusted return. This means, according to Sharpe ratio<sup>(7)</sup>, that there is a positive relationship between ownership concentration and volatility of stock market return. The closed corporate governance system associated with high ownership concentration means that the outside investors have little information and there is a high probability of insider trading. As a consequence, these companies tend to have more volatile stock market prices (Clark and Wojcik, 2005). A study by Azzam (2010) examines the relationship between ownership concentration and stock volatility and how it is affected by the dividend policy of the firm. The results show that ownership concentration has negative impact on stock volatility, since these shareholders act as “market makers” in achieving their stocks’ stability.

In summary, it seems that identifying a significant relationship between ownership concentration and volatility is difficult due to the irrational behavior of investors. Accordingly, we propose the following hypotheses:

**Hypothesis 4a:** Ownership concentration is positively associated with ex post risk.

**Hypothesis 4b:** Ownership concentration has no effect on ex ante risk.

## 3. Data and Methodology

### 3.1 Sample

A total of 213 companies were listed in the Egyptian Stock Exchange by the year 2011. The market capitalization of these listed companies was 293.6 billion pounds by the end of 2011 (ElSherif, 2015). The sample includes 85 Egyptian companies with small, medium and large firms to avoid any selection bias. I collected daily data on prices of stocks and volume of trade for these companies for the period from 2005-2011. The daily stock prices and volume were collected from the Egyptian stock exchange. The daily total volume of these 85 companies represents on average 99% of the market daily total volume of trade, which means that the sample is relatively representing the population (CASE, 2011). The companies’ annual financial data were collected from the Egyptian stock exchange. Then, the ratios from the annual financial data for the period 2005-2011 were calculated. While, the annual ownership structure data were collected from Egypt for Information Dissemination (egID).<sup>8</sup> The total number of observations is 323 after removing the outliers.

Daily data for prices and volumes for each of these stocks are used to calculate ex post and ex ante return and volatilities. In order to minimize the effect of outliers on the results, the observations with the highest and lowest 20% of each return measure used in this sample are omitted. The reason is that the daily price limit movement is 20%. The percentage of equity ownership held by institutions in a company’s shareholders and ownership concentration are calculated from the ownership structure data. It should be mentioned that the data available about ownership structure in Egypt is very limited. Collecting the data on ownership structure and concentration for each firm constituted a large part of

<sup>(7)</sup> Sharpe ratio is a measure of the excess return or risk premium per unit of deviation in an investment asset. It is used to calculate how well the return on asset compensates the investor for the risk taken. The higher the number of the Sharpe ratio the better.

<sup>8</sup> “For more than ten years now Egypt for information dissemination –egID has been the sole aggregator and authorized distributor of the Egyptian exchange listed companies information”- [www.egidegypt.com](http://www.egidegypt.com) (accessed on 18/10/2014)

the research for this paper. This big effort is what made this research possible, since the analysis uses real figures. Also, it is worth noting that the unavailability of enough data for the years following 2011 prevented the researcher from further investigation of the possible effects that could have accompanied the post 25th of January revolution. In addition, the Egyptian stock exchange collapsed after the revolution for a long period of time causing the total return of most stocks to be negative.

### 3.2 Data Description and Sources

Sources and description of all variables are given in Table 1.

**Table 1:** Description of Variables

| Variables                    | Description   | Source  |
|------------------------------|---|---|
| Volatility Clustering        | Estimate of the parameter of the GARCH model  | Calculated from the stock prices from EGX         |
| Employee Associations        | Percentage of equity ownership held by employees association in a company   | egID  |
| Ex-Ante Return               | The expected return of a stock forecasted from the GARCH model  | Calculated from the stock prices from EGX         |
| Ex-Ante Risk                 | The future expected risk of a stock forecasted from the GARCH model   | Calculated from the stock prices from EGX         |
| Ex Post Return               | Average daily total return for year i calculated as $\ln(P_t) - \ln(P_{t-1})$ , where $P_t$ is the daily price of the stock at time t     | Calculated from the stock prices from EGX         |
| Ex Post Risk                 | Standard deviation of the daily total return for year i   | Calculated from the stock prices from EGX         |
| Individuals                  | Percentage of equity ownership held by individuals in a company   | egID  |
| Investment Funds             | Percentage of equity ownership held by investment funds in a company  | egID  |
| Market Return                | $\ln index_t - \ln index_{t-1}$   | Calculated from the market index (EGX30) from EGX |
| Market to Book Value         | Market price per share for common stock divided by book value per share of common stock   | EGX   |
| Ownership Concentration      | Percentage of equity ownership held by the largest three institutional investors (own more than 5%) in a company                          | egID  |
| Volatility Persistence       | Estimate of the parameter of the GARCH model, and it is calculated as the sum of the coefficients of the residual and GARCH (1) equations | Calculated from the stock prices from EGX         |
| Private and Public Banks     | Percentage of equity ownership held by private and public banks in a company  | egID  |
| Private and Public Companies | Percentage of equity ownership held by private and public companies in a company  | egID  |
| Private and Public Holdings  | Percentage of equity ownership held by private and public holdings in a company   | egID  |
| Private and Public Insurance | Percentage of equity ownership held by private and public insurance companies in a company  | egID  |
| Return on Asset (ROA)        | Net income divided by total assets  | EGX   |
| Size                         | Natural Logarithm of total assets   | EGX   |
| Top Management               | Percentage of ownwrship held by top management of a company   | egID  |
| Volume                       | Daily volume of trade of a stock  | EGX   |

### 3.3 Descriptive Statistics

Table 2 provides the summary of statistics for our sample that includes 85 companies listed in the Egyptian Stock Exchange. The means, medians, minimum, maximum, standard deviation, Jarque-bera test and other summary measures for 20 variables are calculated. According to the statistics in table 3.2, the mean proportion of institutional ownership with its several decompositions adds up to 52.4%, with the highest percentage dominated by private and public companies (18.3 %) and the lowest by investment funds (0.02%). Moreover, the mean ownership ratio for the largest three block shareholders is 47.8%. The mean ex post daily return of all companies from 2005-2011 is 0.02%. The mean ratio of return on assets is 6.4%. Figures 3.1 and 3.2 display the mean of the variables used in this study.

Moreover, the table highlights that the variability is quite similar for ex post return and ex ante return (0.006 and 0.008, respectively), and it is higher than the variability in market return (0.002). The skewness results for all variables show that the null hypothesis of skewness coefficients in compliance to the normal distribution value of zero is always rejected at the 5% significance level. Also, most variables display excess kurtosis, which means that the null hypothesis of coefficients in compliance to the normal value of three is rejected. Thus, the distributions have thicker (fatter) tails than a normal distribution. Therefore, the hypothesis of unconditional (normality) is always rejected by Jarque-bera test statistics showing that the variables are not normally distributed, and confirming the results based on either skewness or kurtosis.

**Table 2:** Descriptive Statistics

This table provides summary of the statistics for a sample that includes 85 companies listed in the Egyptian Stock Exchange. The table reports the means, medians, minimum, maximum, standard deviation, skewness, kurtosis, Jarque-bera , probability, sum, sum sq. Dev. and observations for 20 variables. All variables are defined in Table 3.1.

|                                      | Mean   | Median | Minimum | Maximum | Std. Dev. | Skewness <sup>9</sup>  | Kurtosis <sup>10</sup> | Jarque-Bera <sup>11</sup> | Probability | Sum    | Sum Sq. Dev. | Observations |
|--------------------------------------|--------|--------|---------|---------|-----------|------------------------|------------------------|---------------------------|-------------|--------|--------------|--------------|
| Ex Ante Return                       | 0.001  | 0      | -0.049  | 0.055   | 0.008     | 2.362                  | 25.46                  | 7092.22                   | 0.000       | 0.415  | 0.018        | 323          |
| Ex Ante Risk                         | 0.044  | 0.036  | 0.000   | 0.622   | 0.048     | 7.800                  | 81.21                  | 85591.4                   | 0.000       | 14.36  | 0.734        | 323          |
| Ex Post Return                       | 0.002  | 0.0001 | -0.023  | 0.048   | 0.006     | 2.964                  | 21.04                  | 4851.02                   | 0.000       | 0.485  | 0.012        | 323          |
| Ex Post Risk                         | 0.038  | 0.036  | 0       | 0.124   | 0.015     | 1.498                  | 7.63                   | 408.9                     | 0.000       | 12.297 | 0.076        | 323          |
| Employee Associations                | 0.012  | 0      | 0       | 0.1     | 0.025     | 2.067                  | 6.167                  | 365.09                    | 0.000       | 3.84   | 0.209        | 323          |
| Individuals                          | 0.039  | 0      | 0       | 0.807   | 0.103     | 4.39                   | 26.47                  | 8449.8                    | 0.000       | 12.75  | 3.44         | 323          |
| Investment Funds                     | 0.002  | 0      | 0       | 0.116   | 0.011     | 7.81                   | 65.79                  | 56359.06                  | 0.000       | 0.506  | 0.042        | 323          |
| Private & Public Banks               | 0.045  | 0.002  | 0       | 0.729   | 0.106     | 3.439                  | 16.78                  | 3190.8                    | 0.000       | 14.63  | 3.61         | 323          |
| Private & Public Companies           | 0.183  | 0.061  | 0       | 0.956   | 0.235     | 1.178                  | 3.448                  | 77.35                     | 0.000       | 59.17  | 17.82        | 323          |
| Private & Public Holdings            | 0.117  | 0      | 0       | 0.917   | 0.211     | 2.081                  | 6.704                  | 417.79                    | 0.000       | 37.83  | 14.39        | 323          |
| Private & Public Insurance Ownership | 0.033  | 0.001  | 0       | 0.343   | 0.060     | 2.449                  | 9.621                  | 912.85                    | 0.000       | 10.51  | 1.173        | 323          |
| Concentration                        | 0.478  | 0.486  | 0       | 0.956   | 0.245     | -0.109                 | 2.148                  | 10.42                     | 0.005       | 154.36 | 19.33        | 323          |
|                                      | Mean   | Median | Minimum | Maximum | Std. Dev. | Skewness <sup>12</sup> | Kurtosis <sup>13</sup> | Jarque-Bera <sup>14</sup> | Probability | Sum    | Sum Sq. Dev. | Observations |
| Persistence                          | 0.833  | 0.908  | -0.006  | 1.108   | 0.213     | -2.224                 | 8.075                  | 612.94                    | 0.000       | 269.02 | 14.55        | 323          |
| Clustering                           | 0.675  | 0.736  | -0.312  | 1.254   | 0.262     | -1.344                 | 4.909                  | 146.34                    | 0.000       | 218.06 | 22.12        | 323          |
| Market Return                        | 0.0001 | 0.0007 | -0.003  | 0.003   | 0.002     | -0.365                 | 1.891                  | 23.73                     | 0.000       | 0.039  | 0.002        | 323          |

<sup>9</sup> The value of the skewness coefficient for a normal distribution is equal to zero.

<sup>10</sup> The value of the kurtosis coefficient for a normal distribution is equal to 3.

<sup>11</sup> The Jarque-Bera test for normality distributed as  $\chi^2_2$  (2 degrees of freedom). The critical value for the null hypothesis of normal distribution is 5.99 at the 5% significance level. Higher test values reject the null hypothesis.

<sup>12</sup> The value of the skewness coefficient for a normal distribution is equal to zero.

<sup>13</sup> The value of the kurtosis coefficient for a normal distribution is equal to 3.

<sup>14</sup> The Jarque-Bera test for normality distributed as  $\chi^2_2$  (2 degrees of freedom). The critical value for the null hypothesis of normal distribution is 5.99 at the 5% significance level. Higher test values reject the null hypothesis.

|                       | Mean  | Median | Minimum | Maximum | Std. Dev. | Skewness <sup>12</sup> | Kurtosis <sup>13</sup> | Jarque-Bera <sup>14</sup> | Probability | Sum     | Sum Sq. Dev. | Observations |
|-----------------------|-------|--------|---------|---------|-----------|------------------------|------------------------|---------------------------|-------------|---------|--------------|--------------|
| Market to Book Value  | 2.776 | 1.58   | 0       | 45.37   | 4.66      | 5.706                  | 44.12                  | 24511.8                   | 0.000       | 896.77  | 7005.7       | 323          |
| ROA                   | 0.064 | 0.052  | -0.159  | 0.404   | 0.072     | 1.142                  | 6.609                  | 245.50                    | 0.000       | 20.75   | 1.69         | 323          |
| Size                  | 8.985 | 8.863  | 6.605   | 12.69   | 0.874     | 0.459                  | 3.453                  | 14.11                     | 0.0009      | 2902.09 | 246.16       | 323          |
| Top Management Volume | 0.093 | 0.001  | 0       | 0.858   | 0.181     | 2.208                  | 7.022                  | 480.04                    | 0.000       | 29.99   | 10.55        | 323          |
|                       | 5.633 | 5.639  | 2.868   | 7.581   | 0.767     | -0.371                 | 3.641                  | 12.96                     | 0.002       | 1819.45 | 189.29       | 323          |

Figure 1

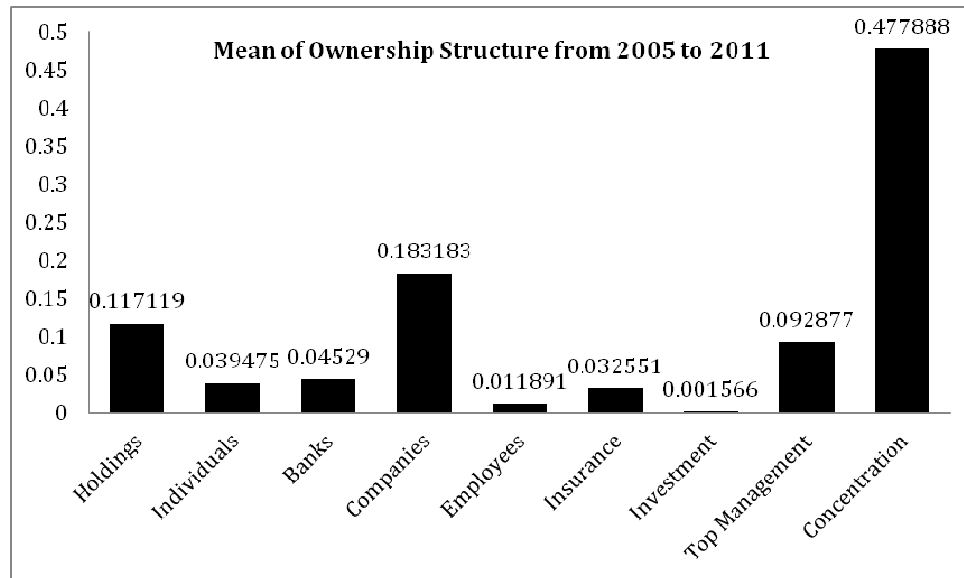
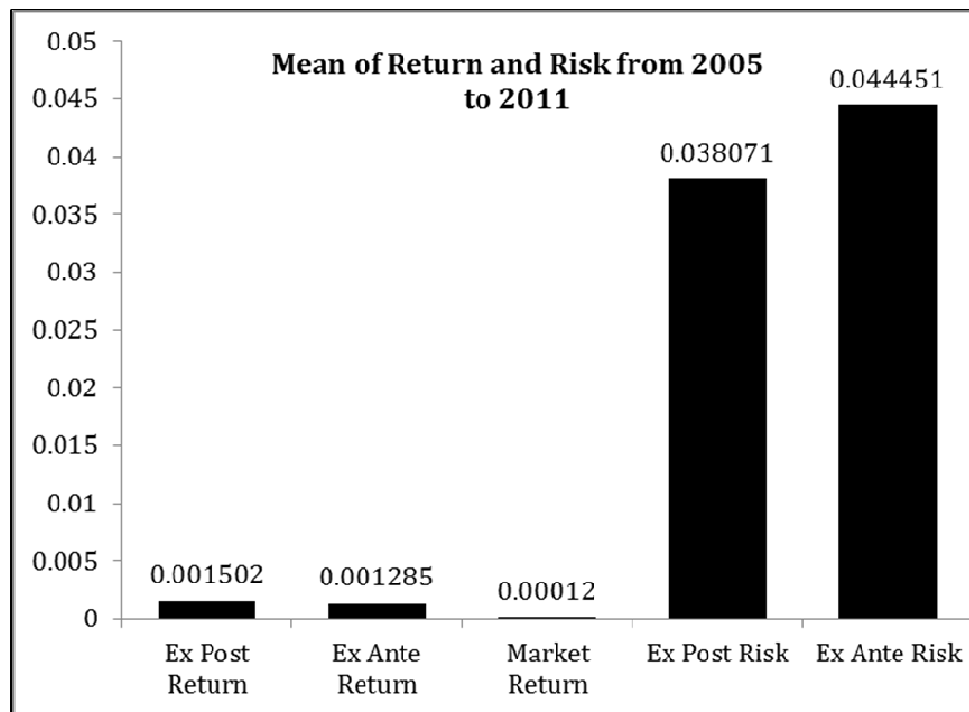


Figure 2



### 3.4 Model Specification and Variable Construction

#### 3.4.1 General Autoregressive Conditional Heteroskedasticity (GARCH)

The Autoregressive Conditional Heteroskedasticity (ARCH) model, (Engle, 1982) and its generalization, the Generalized Autoregressive Conditional Heteroskedasticity (GARCH) model, (Bollerslev, 1986) is a widely used methodology applied on daily financial data. There are different representations for GARCH models: GARCH, GARCH-M, EGARCH and PGARCH. Other famous asymmetric GARCH models include Threshold GARCH (TGARCH) of Zakoian (1994), the Quadratic GARCH (QGARCH) of Sentana (1995), the Volatility Switching ARCH (VS-ARCH) of Fornari and Mele (1996), and Logistic Smooth Transition ARCH (LST-ARCH) of Gonzales-Rivera (1998) and Hagerud (1997). We also find in the recent financial literature (Arago and Nieto, 2005) the application of GARCH models with a wide variety of densities (i.e. Normal, GED (Generalized Error Distribution), Student-t, GED with a fixed parameter, and Student-t with a fixed degree of freedom).

To determine whether the error  $\varepsilon_t$  in equation 1a follows an autoregressive conditional heteroscedasticity model, we run an ARCH Lagrange multiplier (LM) test on  $\varepsilon_t$ , to investigate whether the standardized residuals exhibit additional ARCH effects. Then we test the normality of  $\varepsilon_t$ , using the Jarque-Bera test. Since skewness and kurtosis are important features in financial applications, the use of a GARCH model seems more appropriate. If the residual is not normally distributed, a GARCH model with Generalized Error Distribution (GED) must be applied, and we add to the GARCH model the GED log-likelihood function for a normalized random error, (see Nelson (1991) and Hamilton (1994)).

We define the GARCH (1, 1)-GED model as follows:

$$TR_t = \alpha_0 + \alpha_1 TR_{t-1} + \alpha_2 Volume_t + \varepsilon_t \quad (1)$$

$$\sigma_{\varepsilon,t}^2 = \beta_0 + \beta_1 \varepsilon_{t-1}^2 + \beta_2 \sigma_{\varepsilon,t-1}^2 \quad (2)$$

$$L_{GED} = \sum_{t=1}^T \left[ \ln\left(\frac{\nu}{\lambda_\nu}\right) - 0.5 \left| \frac{z_t}{\lambda_\nu} \right|^\nu - (1 + \nu^{-1}) \times \ln(2) - \ln \Gamma\left(\frac{1}{\nu}\right) - 0.5 \ln(\sigma_t^2) \right] \quad (3)$$

$$\lambda_\nu = \sqrt{\frac{\Gamma\left(\frac{1}{\nu} 2^{\frac{2}{\nu}-1}\right)}{\Gamma\left(\frac{3}{\nu}\right)}}$$

For  $\nu$  (positive parameter for the thickness of the tails of the distribution) = two, constant  $\lambda =$  one, the GED becomes the standard normal distribution. To sum up, we use the above-mentioned GARCH (1, 1)-GED model to generate ex-ante return and volatility and the effect of information arrival before and after day trading. Ex-ante return is the average of the forecasted return from the mean equation in the GARCH (1, 1)-GED model (Equation 1). The ex-ante risk is the ex-ante standard deviation, which is the average of the square root of the variances generated from the variance equation of the GARCH (1, 1)-GED model (Equation 2). The volatility clustering, which means high volatilities are followed by high volatilities and visa versa, is measured by  $\beta_2$  in equation 2. The volatility persistence is measured by the sum of  $\beta_1 + \beta_2$  in equation 2.

#### 3.4.2 Panel Data Model

We estimate a panel data model with unbalanced data after controlling for firm characteristics. In panel data, the same cross-sectional units (example; institutional ownership, firms, ownership concentration) are surveyed over time.

$$\text{Ex Post Return}_{it} = \beta_0 + \sum_{i=1}^8 \alpha_i \text{Institution}_{it} + \delta_i \text{Concentration}_{it} + \beta_1 \text{ROA}_{it} + \beta_2 \text{Size}_{it} + \beta_3 \text{MB}_{it} + \beta_4 \text{Market Return}_{it} + \beta_5 \text{Volume}_{it} + U_{it} \quad (4)$$

$$\text{Ex Post Risk}_{it} = \beta_0 + \sum_{i=1}^8 \alpha_i \text{Institution}_{it} + \delta_i \text{Concentration}_{it} + \beta_1 \text{Size}_{it} + \beta_2 \text{Clustering}_{it} + \beta_3 \text{Persist}_{it} + U_{it} \quad (5)$$

$$\text{Ex Ante Return}_{it} = \beta_0 + \sum_{i=1}^8 \alpha_i \text{Institution}_{it} + \delta_i \text{Concentration}_{it} + \beta_1 \text{Size}_{it} + U_{it} \quad (6)$$

$$\text{Ex Ante Risk}_{it} = \beta_0 + \sum_{i=1}^8 \alpha_i \text{Institution}_{it} + \delta_i \text{Concentration}_{it} + \beta_1 \text{Size}_{it} + \beta_2 \text{Clustering}_{it} + \beta_3 \text{Persist}_{it} + U_{it} \quad (7)$$

Where:

*Ex Post Return<sub>it</sub>* = Ex post return are a proxy for contemporaneous return of year i.

*Ex Ante Return<sub>it</sub>* = Ex ante return are a proxy for the expected return of the stock.

*Institution<sub>it</sub>* = Percentage of equity ownership held by banks, private and public companies, employee associations, private and public holding companies, individuals, private and public insurance companies, investment funds, and top management.

*Concentration<sub>it</sub>* = Percentage of a firm's outstanding stocks held by the largest three block holders.

*ROA<sub>it</sub>* = Return on assets is a proxy for firm profitability.

*Size<sub>it</sub>* = Size of the company is a control variable.

*MB<sub>it</sub>* = Market to book ratio is a control variable.

*Market Return<sub>it</sub>* = Average daily market return is a control variable.

*Volume<sub>it</sub>* = Proxy for stock liquidity.

*Ex Post Risk<sub>it</sub>* = Ex post risk is a proxy for the standard deviation of the daily total return for year i.

*Ex Ante Return<sub>it</sub>* = Ex ante risk is a proxy for the expected future risk of the stock.

*Clustering<sub>it</sub>* = Volatility clustering.

*Persist<sub>it</sub>* = Volatility persistence.

*U<sub>it</sub>* = Error term.

Measures of market performance, ownership and control variables will be defined below.

### 3.4.3 Market Performance and Ownership Measures

We use the ex post return, ex ante return, ex post risk, ex ante risk, as the measures of market performance. The ex post return, another term for actual return, is defined as the average daily total return for year i. The daily total return is calculated as  $\ln(P_t) - \ln(P_{t-1})$ , where  $P_t$  is the daily price of the stock at time t. The ex post risk is the standard deviation of the daily total return for year i. The ex-ante return is the expected return of a stock. While, ex ante risk is the future expected risk of a stock. We use the Generalized Autoregressive Conditional Heteroscedasticity (GARCH) model to generate ex-ante return and volatility. Ex-ante return is the average of the forecasted return from the mean equation in the GARCH model. The ex ante risk is the ex-ante standard deviation, which is the average of the square root of the variances generated from the variance equation of our GARCH model. In finance, volatility clustering refers to the observation, as documented by Mandelbrot (1963) that "large changes tend to be followed by large changes, of either sign, and small changes tend to be followed by small changes". The implication of such volatility clustering is that volatility shocks today will affect the forecasting of volatility many periods in the future. It will be calculated from the estimates of the parameters of the GARCH model, as  $\beta_2$  in equation 2. Volatility is said to be persistent if the current return has a large impact on the expected variance many periods in the future (Engle and Patton, 2001). High persistence means that a shock to the stock return stays for a long time. It will be calculated from

the estimates of the parameters of the GARCH model, as the sum of  $\beta_1 + \beta_2$  in equation 2. Institutional ownership will be decomposed to insurance companies, employee associations, investment funds, individuals, top management, public and private banks, private and public holdings and private and public companies (defined above in table 3.1). Ownership concentration is measured as the percentage of a firm's outstanding stocks held by the largest three block holders.

### 3.4.4 Control Variables

Control variables are the variables that control the separate effect of the independent variables on the dependent variable. The control variables used in all equations are firm size, return on assets (ROA), market to book ratio, market return and volume of trade. ROA is calculated as net income divided by total assets, and it is used to control for profitability (e.g., Rubin and Smith, 2009). The log of total assets measures firm size. Market to book ratio is the market price to the book value. Market return is the average of the daily total return of the market calculated as  $\ln index_t - \ln index_{t-1}$ , while volume of trade is the average of the daily volume of trade of the stock.

### 3.4.5 Diagnostic Tests

Hausman test statistic is used to test whether a fixed or random effects model should be used (Hausman, 1978). The test question is whether there is significant correlation between the unobserved country-specific random effects and the regressors. If there is no such correlation, then the random effects model may be more powerful and parsimonious. The results of the test show that there is a significant correlation between the unobserved country-specific random effects and the regressors. Therefore, the preferred model should have fixed effect. To test for normality of observations and regression residuals, the Jarque-Bera test for normality of the standardized residuals is used and shows that the errors are not normally distributed. Also, we use the Dickey-Fuller (DF) test to test for stationarity. In this test, the authors Dickey and Fuller have computed the critical values on the basis of Monte Carlo simulations (Dickey and Fuller, 1979). Comparing the Augmented Dickey-Fuller test statistic with the critical value, at the 5% significance level, shows that all variables are stationary. The question of endogeneity has been addressed in this study. According to some studies in literature (Bhattacharya and Graham, 2009 and Lskavyan and Spatareanu, 2006), some variables are suspected to be endogenous especially the financial performance variables with the ownership structure variables. Therefore, I undertook a Durbin Hausman-Wu test. As a general rule, when a variable is endogenous, it will be correlated with the error term, leading to biased estimators. After analyzing each instrument and their combinations, the results confirmed that there is no endogeneity in the model, which supports the exogenous ownership-performance hypothesis. Moreover, some researchers believe that the endogenous ownership hypothesis is not applicable in studying emerging markets, because developing countries do not have liquid and developed capital markets, and thus it is difficult for investors to trade and adapt ownership structure in response to the changing market circumstances. In other words, market forces do not function efficiently in the stock markets of such economies (Stiglitz, 1994). The evidence in favor of the exogenous ownership hypothesis is consistent with the model of the emerging stock market of Egypt.

## 4. Empirical Results

Table 4.1 provides findings of the four models for regression using the stock return and risk as dependent variables. The results show the explanatory power of the four models as measured by the adjusted R<sup>2</sup>, which provides a better estimation of the true population value, especially with a small sample. Values of the adjusted R<sup>2</sup> are 0.593, 0.351, 0.619 and 0.631. Also, the F (p-value < 0.05) for all models confirms that all models are statistically significant. Aiming to achieve improved results in some models, some ownership structure variables are eliminated.

#### 4.1 Institutional Ownership, Ex Post and Ex Ante Return

The results of Table 4.1 show that institutional ownership has no effect on ex post stock return as shown in previous studies (Azzam, 2010; Faugere and Shawky, 2003). The results do not support hypotheses 1a and 1b in Section 2. One possible explanation for that insignificant effect is that the Egyptian stock exchange has inefficient information, as the information arrives to the market chronologically and there is a lot of noise and speculative trading (El\_ansary and Atuea, 2012). Thus, it is very difficult to rely on a specific variable to explain the variations that happen to stock return, especially as far as the Egyptian Exchange is concerned. Also, the stock market performance is mainly affected by economic and market conditions rather than ownership structure variables. The financial crisis that happened in 2008 had a sound negative effect on the stock market. In addition, the results confirm the market inefficiency of the Egyptian stock market. The stock prices in this case might not reflect the costs and benefits of diversification. In other studies (Grinblatt and Titman, (1989, 1993); Grinblatt et al., 1995; Jones et al., 1999; Nofsinger and Sias, 1999; Wermers, (1999,2000), the relationship is proved to be positive and significant due to certain factors mentioned before. For example, institutional investors are “momentum traders” and they have tendency to be guided by the historical prices (Grinblatt et al., 1995). Also, mutual funds as a category of institutions sometimes engage in institutional “herding” (Wermers, 1999). In addition, the coexistent relationship between changes in institutional ownership and stock return is more solid than the “trend chasing effect” (Nofsinger and Sias, 1999). This is not the case for Egyptian Stock Exchange.

**Table 4.1:** Regression Analysis of the effect of institutional ownership and ownership concentration on stock market performance variables

The t-statistics in parentheses marked as \*, \*\* and \*\*\* denote the 90%, 95% and 99% significance level respectively. Statistical significance t-statistics are determined by White standard errors to correct for heteroscedasticity.

| Variable       | Ex Post Return        | Ex Ante Return      | Ex Post Risk         | Ex Ante Risk        |
|----------------|-----------------------|---------------------|----------------------|---------------------|
| C              | 0.059<br>(5.986)***   | 0.018<br>(1.274)    | 0.051<br>(2.554)**   | 0.049<br>(0.713)    |
| Size           | -0.005<br>(-4.638)*** | -0.003<br>(-1.648)  | -0.002<br>(-0.751)   | -0.008<br>(-1.040)  |
| Banks          | -0.001<br>(-0.325)    | 0.003<br>(0.728)    | 0.004<br>(0.446)     | -0.003<br>(-0.096)  |
| Companies      | 0.004<br>(1.037)      | 0.009<br>(2.039)**  | -0.002<br>(-0.294)   | -0.0003<br>(-0.011) |
| Concentration  | -0.002<br>(-0.558)    | 0.009<br>(2.923)*** | 0.0008<br>(0.095)    | 0.072<br>(2.946)*** |
| Employees      | -0.022<br>(-1.768)    | -0.013<br>(-0.595)  | 0.109<br>(1.664)*    | 0.626<br>(4.451)*** |
| Holdings       | 0.0001<br>(0.053)     | 0.002<br>(0.053)    | -0.009<br>(-1.608)   | -0.028<br>(-1.033)  |
| Individuals    | 0.009<br>(1.905)*     | 0.014<br>(1.896)*   | -0.025<br>(-2.369)** | -0.027<br>(-0.731)  |
| Insurance      | 0.023<br>(1.379)      | 0.0009<br>(-0.228)  | -0.006<br>(-0.121)   | -0.102<br>(-0.798)  |
| Investment     | 0.019<br>(0.749)      | -0.005<br>(0.749)   | -0.042<br>(-0.608)   | -0.160<br>(-0.837)  |
| Top Management | 0.006<br>(1.242)      | -0.0003<br>(-0.060) | -0.019<br>(-1.997)** | -0.015<br>(-0.458)  |
| ROA            | 0.011<br>(2.233)**    |                     |                      |                     |
| Volume         | -0.003<br>(-3.981)*** |                     |                      |                     |
| Market Return  | 0.663<br>(5.725)***   |                     |                      |                     |



| Variable                | Ex Post Return      | Ex Ante Return | Ex Post Risk        | Ex Ante Risk          |
|-------------------------|---------------------|----------------|---------------------|-----------------------|
| MB                      | 0.0002<br>(2.542)** |                |                     |                       |
| Clustering              |                     |                | -0.009<br>(-1.671)* | -0.106<br>(-5.341)*** |
| Persistence             |                     |                | 0.014<br>(2.275)**  | 0.106<br>(5.642)***   |
| R <sup>2</sup>          | 0.716               | 0.552          | 0.739               | 0.747                 |
| Adjusted R <sup>2</sup> | 0.593               | 0.351          | 0.619               | 0.631                 |
| S.E of Regression       | 0.004               | 0.006          | 0.009               | 0.029                 |
| F- statistic            | 5.838               | 2.739          | 6.189               | 6.450                 |
| Prob. (F-stat.)         | 0.000               | 0.000          | 0.000               | 0.000                 |

The Egyptian Exchange performance sometimes moves contradictory to what most theories say, part of it depends on speculation.<sup>15</sup> Profitability (represented by ROA) has a positive and significant effect on ex post return (5% level), which also coincides with previous studies (Azzam, 2010). Size has a negative and significant effect on ex post return (1% level), since bigger firms are usually associated with less return and lower risk. Also, volume has significant and negative effect on stock return (1% level). It is true that large volume of trade is often associated with more liquid stocks, where the return is low. Market return has a positive and significant effect on stock return (1% level), which is normal. Also, market to book ratio has a positive and significant impact on ex post return (5% level), which is consistent with Zeytinoglu et al. (2012) in their study of the impact of market based ratios on stock return in the insurance sector in Turkey.

The results show also that institutional ownership has no effect on ex ante return except for companies, which have a positive and significant effect (5% level) and individuals, who have a positive and significant effect (10% level). This means that the effect is very weak and this actually coincides with Gompers and Metrick (2001) and Sias et al. (2006) who find that the relationship between changes in institutional ownership and next quarter's return insignificant. Sias et al. (2006) add that the ability to forecast future return is only strong in the case of mutual funds, which means that these institutions have better access to information than the others. In addition, Cai and Zheng (2004) find that changes in institutional ownership do not predict the stock return. Moreover, Griffin et al. (2003) find no evidence to support that the increase in institutional imbalances forecast future daily return. In most economies, the relationship between changes in institutional ownership and future stock return might be of a concern simply because changes in institutional ownership act as a proxy for changes in the strength of corporate governance. It seems that this is not the case in Egypt as evident from the results.

## 4.2 Institutional Ownership, Ex Post and Ex Ante Risk

Moreover, the results in table 4.1 show that institutional ownership has no effect on ex ante risk except for employees associations that have positive and significant effect on ex ante risk (1% level). As reported by Chicernea, Petkevich and Reca (2013), institutional ownership no longer explains idiosyncratic volatility in the last decade. As a consequence, it is difficult to predict whether the stock return volatility will exhibit an upward or downward trend with the increase in institutional ownership. Sahut et al. (2011), Rubin and Smith (2009) and Sias (2006) trace a positive relationship between the level of institutional holding and stock returns volatility. They also add that changes in volatility could be forecasted by the variation in the lag changes in institutional ownership.

It is worth mentioning that in the traditional asset pricing theory, the composition of ownership on a financial asset does not affect future return or risk. If the existing holders of an asset buy or sell for reasons unrelated to fundamentals, new owners immediately take their place, with no effect on

<sup>15</sup>All analysis and opinions related to the Egyptian stock market in the empirical section is based on an interview with Dr. Islam Azzam, the associate professor and head of Finance in the American University in Cairo and the Capital market specialist. I hereby express my deep gratitude to him.

price (Greenwood and Thesmar, 2009). Our results regarding the effect of institutional ownership on ex ante return and risk support this theory. Two important components of volatility, clustering and persistence show also significant relationship with ex ante risk. Volatility clustering has a negative and significant effect (1% level), while volatility persistence has a positive effect (1% level), which reveals their stronger influence on the expected risk than for the ex post risk. This means that there is a high probability of high volatility days being followed by other high volatility days due to high volatility persistence. The ultimate outcome is that the tails of the distribution of stock market return become fatter or that there will be a high probability of extreme price movements. This means that the stock market in Egypt displays other volatility behavior related to clustering and persistence that have to be taken into account when forecasting risk.

#### **4.3 Ownership Concentration, Ex Post and Ex Ante Return**

The results of Table 4.1 show that institutional ownership as well as ownership concentration has no effect on ex post stock return as shown in previous studies (Azzam, 2010; Faugere and Shawky, 2003). Also, the results coincide with past studies of (Shleifer, 2000; Shiller, 2000) which state that there is no significant relationship between ownership concentration and stock return. On the other hand, the relationship between ownership concentration and ex ante return is positive and significant (1% level). This could be the case since Parigi and Pelizzon (2006) find that controlling shareholders with the highest concentration get higher expected return than non-controlling shareholders because they can distract a part of the profits of the firm they control. The results support hypotheses 3a and 3b in section 3.

#### **4.4 Ownership Concentration, Ex Post and Ex Ante Risk**

Moreover, ownership concentration shows insignificant relationship with ex post risk, while it has a positive and significant relationship with ex ante risk (1% level). It is logical since it shows a positive and significant relationship with ex ante return. It is known that there is a positive correlation between risk and return. Also, it is known that with the closed corporate governance system associated with high ownership concentration, the outside investors could have little information and there is a high probability of insider trading. As a consequence, the companies with high ownership concentration are expected to have more volatile stock market prices. The results do not support hypothesis 4a and 4b in section 2.

### **5. Conclusion**

We investigate the relationship between market performance, institutional ownership and ownership concentration. Our contribution includes the following: first, most studies examine the relationship between the level or changes in institutional ownership and both the ex post and contemporaneous return. Little emphasis is given to the relationship between institutional ownership and future return. In our study, analyzing the impact of institutional ownership on ex ante return and volatility fills this gap left by former studies. Second, the effect of both volatility clustering and persistence is tested on stock volatility for the first time as far as the Egyptian stock market is concerned. Third, the analysis extends the literature by decomposing the institutional ownership to several types which are; insurance companies, employee associations, public and private banks, holdings, and companies. Fourth, the previous studies pay little attention to the small emerging countries, where the above-mentioned relationship could be different than what the previous papers have concluded, and have only dealt with developed and large emerging economies. This study is analyzed and tested using data from the Egyptian stock market, which is one of the small emerging markets that are ignored in literature. The differences between Egypt and large emerging and developed countries in legal and political systems, country factors, and market structure and development make Egypt an interesting case to investigate. Fifth, we add many control variables and we examine their effect. Past studies do not combine all these control variables in one regression. Sixth, GARCH (1,1)-GED model is used to generate ex-ante return and volatility. Previous studies have not used GARCH to measure forecasted return and volatility.

The research uses panel data model with unbalanced data after controlling for firm characteristics. In panel data, the same cross-sectional units (example; institutional ownership, firms, ownership concentration) are analyzed over time. Also, GARCH (1, 1)-GED model is used to generate ex-ante return and volatility and to estimate volatility clustering and volatility persistence. A panel model is proposed that directly relates the predetermined firms ownership structures and firm characteristics to time and cross sectional varying stock return and financial performance measures. Using a large cross section of companies over time, return, risk, volume and financial performance ratios of companies are parsimoniously estimated as functions of ownership structure variables and firm characteristics.

This research is the first comprehensive study done to investigate the impact of ownership structure on ex post and ex ante return and volatility on the stock return in the Egyptian Stock market. Past studies concentrate on past and contemporaneous return and volatility and how they are affected by the percentage of institutional ownership and ownership concentration. Few studies test the impact on future return and volatility. Moreover, the study analyzes the effect of two components of volatility, clustering and persistence on the historical and expected stock volatility. The findings of this paper are robust to alternative methodologies. Many factors such as; the legal system, macroeconomic variables, political instability, global financial crises and exchange rates can have an impact on stock return and volatility in the Egyptian Stock and may represent significant variables as well. The impact of the above-mentioned variables on market performance is beyond the interest of this paper and calls for further investigations in future researches.

In addition, the results of this research must be interpreted carefully and not generalized to all emerging countries. Further researches must examine more emerging countries, in order to better understand the impact of ownership structure and concentration on market performance. Finally, the researcher believes that this study provides wide scope for further research to investigate other factors and their effect on the market and financial performance in Egypt. The following are some suggestions for future research: i) this research could be extended to cover more years (Pre and post the period covered). This helps to identify a clear picture of how ownership structure and concentration affects return and volatility over time, ii) a comparative study between Egypt and another emerging country in the same context can be investigated. In this case, one could gain better insight on the comparative impact of ownership structure and concentration on return and volatility in two different environments, and iii) In addition, researchers can investigate other factors (macroeconomic, political, etc.) and their effect on return and volatility in the Egyptian Stock Exchange.

## References

- [1] Ali, A., Durtschi, C., Lev, B., & Trombley, M. (2002). Informed trading by institutions and quality of accounting information. Working paper, University of Arizona.
- [2] Alzeaiden, K.A., & Al\_Rawash, S.Z. (2014). The effect of ownership structure on share price volatility of listed companies in Amman Stock Exchange. *Research Journal of Finance and Accounting*, 5(6), 192-201.
- [3] Arago, V., & Nieto, L. (2005) Heteroskedasticity in the Returns of the Main World Stock Exchange Indices// *International Financial Markets Institutions and Money*, 15, 271-284.
- [4] Azzam, I. (2010). The Impact of Institutional Ownership and Dividend Policy on Stock Returns and Volatility: Evidence from Egypt. *International Journal of Business*, 15(4), 444-458.
- [5] Badrinath, S., & Wahal, S. (1998). Momentum trading by institutions. Unpublished Working Paper, Rutgers University, New Brunswick, NJ.
- [6] Belghitar, Y., Ephraim C., & Kassimatis, K. (2011). The Prudential Effect of Strategic Institutional Ownership on Stock Performance. *International Review of Financial Analysis*, 20, 191-199.

- [7] Bernard, V.L., & Thomas, J.K. (1989). Post-Earnings Announcement Drift: Delayed Price Response or Risk Premium? *Journal of Accounting Research*, 27, 1-36.
- [8] Bernasek, A. (2014). Individual Stocks have become more volatile. National Bureau of Economic Research Working Papers.
- [9] Bildersee, J., & Khan, N. (1987). A preliminary test of the presence of Window Dressing: evidence from institutional stock trading. *Journal of Accounting, Auditing & Finance*, 2, 239-256.
- [10] Bjuggren, P-O, Eklund, J., & Wiberg, D. (2007). Institutional ownership and the return on investments. Working paper 96, CESIS.
- [11] Bollerslev, T. (1986). Generalized Autoregressive Conditional Heteroskedasticity. *Journal of Econometrics*, 31, 307-327.
- [12] Bushee, B.J., & Noe, C.F. (2000). Disclosure quality, institutional investors and stock return volatility. *Journal of Accounting Research*, 171-202.
- [13] Bryman, A., & Cramer, D. (1997). *Quantitative Data Analysis with SPSS for Windows: A Guide for Social Scientists*. Routledge, London.
- [14] Cai, F., Kaul, G., & Zheng, L. (2000). Institutional trades and stock returns. Unpublished working paper, University of Michigan.
- [15] *Capital Market Authority. (2011). EGX Report, (Cairo: CMA).*
- [16] Clark, G.L. & Wójcik, D. (2005). Financial valuation of the German model: The negative relationship between ownership concentration and stock market returns. *Journal of Economic Geography*, 6(5), 639-660.
- [17] Celik,S., & Isaksson, M. (2013). Institutional investors and ownership engagement. *OECD Journal: Financial Market Trends*, 2013(2),93-114
- [18] Chen, Z., Du, J., Li, D., & Ouyang, R. (2013). Does foreign institutional ownership increase return volatility? Evidence from China. *Journal of Banking and Finance*, 37(2), 660-669.
- [19] Davis, P., & Steil, B. (2001). *Institutional Investors*. The MIT Press, Cambridge MA.
- [20] Demsetz, H. & Lehn, K. (1985). The Structure of Corporate Ownership: Causes and Consequences. *Journal of Political Economy*, 93, 1155-1177.
- [21] Deutsche Borse. (2003). Leitfaden zu den Aktienindizes der Deutschen Borse. Frankfurt. Available online: <http://www.deutsche-boerse.com>.
- [22] Dickey, D.A., & Fuller, W.A. (1979). Distribution of the Estimators for Autoregressive Time Series with a Unit Root. *Journal of the American Statistical Association*, 74(366), 427-431.
- [23] Durbin, J., & Watson, G. S. (1951). Testing for Serial Correlation in Least Squares Regression, II. *Biometrika*, 38, 159–179.
- [24] Edwards, F. R., & Hubbard, R.G. (2000). The Growth of Institutional Stock Ownership: A Promise Unfulfilled. *Journal of Applied Corporate Finance*,13 (3), 92-104.
- [25] El-Ansary, O., & Atuea, M. (2012). The effect of stock trading volume on return in the Egyptian Stock Market. *International Research Journal of Finance and Economics*, 100, 152-167.
- [26] ElSherif, A.Y. (2015). The Stock Exchange...Conflict of Taurus and Bears. *The Capital*.
- [27] Engle, R. (1982). Autoregressive Conditional Heteroskedasticity with estimates of the variance of United Kingdom Inflation. *Econometrica*, 50(4), 987-1007.
- [28] Engle, R. F., & Patton, A.J. (2001). What good is a volatility model? *Quantitative Finance*, 1, 237–245.
- [29] Faugere,C., & Shawky, H.A. (2003). Volatility and Institutional Investor Holdings in a Declining Market: A Study of Nasdaq during the Year 2000. *Journal of Applied Finance*, 13(2), 32-42.
- [30] Fornari, F., & Mele, A. (1996). Modeling the changing asymmetry of conditional variances. *Economics Letters*, Elsevier, vol. 50(2), pages 197-203, February.
- [31] Gao, G.P., Moulton, P.C., and Ng, D.T. (2015). Institutional Ownership and Return Predictability across Economically Unrelated Stocks. Conference Proceedings, Presentations, and Speeches School of Hotel Administration Collection, Cornell University.
- [32] Gompers, P., & Metrick, A. (2001). Institutional Investors and Equity Prices. *Quarterly Journal of Economics*, 116 (1), 229-259.

- [33] Gonnard, E., Kim, E.J., & Ynesta, I. (2008). Recent trends in institutional investors statistics. *Financial Market Trends OECD*, 1–22.
- [34] González-Rivera, G. (1998). Smooth transition GARCH models. *Studies in Nonlinear Dynamics and Econometrics*, 3, 61-78.
- [35] Greenwood, R., & Thesmar, D. (2009). Stock Price Fragility. Harvard Business School Research Paper 1490734. Available at SSRN: <http://ssrn.com/abstract=1490734>.
- [36] Griffin, J.M., Harris, J.H., & Topaloglu, S. (2003). The Dynamics of institutional and individual trading. *Journal of Finance*, 58(6), 2285- 2320.
- [37] Grinblatt, M., & Titman, S. (1989). Portfolio Performance Evaluation: Old Issues and New Insights. *Review of Financial Studies*, 2, 393-422.
- [38] Grinblatt, M., & Titman, S. (1993). Performance Measurement without Benchmarks: An Examination of Mutual Fund Returns. *Journal of Business*, 66, 47-68.
- [39] Grinblatt, M., Titman, S., & Wermers, R. (1995). Momentum Investment Strategies, Portfolio Performance, and Herding: A Study of Mutual Fund Behavior. *American Economic Review*, 85, 1088-1105.
- [40] Hagerud, G.E. (1997). *A New Non-Linear GARCH Model*. PhD thesis, IFE, Stockholm School of Economics.
- [41] Hamilton, G.D. (1994). *Time Series Analysis*. UK: Princeton University Press.
- [42] Hassanzadeh, R.B., Nahandi, Y.B., Behbahanzadeh, S.S., & Lalepour, M. (2013). Studying how dividends policy affects the relationship between institutional ownership and stock return fluctuations. *Life Science Journal*, 10(1s), 342-348.
- [43] Hausman, J.A. (1978). Specification Tests in Econometrics. *Econometrica*, 46 (6), 1251-1271.
- [44] Healy, P.M., & Palepu, K.G. (2001). Information asymmetry, corporate disclosure, and the capital markets: A review of the empirical disclosure literature. *Journal of Accounting and Economics*, 31, 405-440.
- [45] Jafarineja, M., Jory, S.R., and Ngo, T.N. (2015). The effects of institutional ownership on the value and risk of diversified firms. *International Review of Financial Analysis*, 40, 207.
- [46] Jarque, C.M., & Bera, A.K. (1987). A Test for Normality of Observations and Regression Residuals. *International Statistics Review*, 55(2), 163-172.
- [47] Jones, S., Lee, D., & Weis, E. (1999). Herding and Feedback Trading by Different Types of Institutions and the Effects on Stock Prices. working paper, Indiana University-Indianapolis, Kennesaw State University, and Merrill Lynch.
- [48] Karpoff, J. M. (1987). The relation between price changes and trading volume: a survey. *Journal of Financial and Quantitative Analysis*, 22, 109-126.
- [49] Khorana, A., Serveas, H., & Tufano, P. (2005). Explaining the Size of the Mutual Fund Industry Around the World. *Journal of Financial Economics*, 78(1), 145-185.
- [50] Lee, C. M. C. (1992). Earnings News and Small Traders: An Intraday Analysis. *Journal of Accounting and Economics*, 15(2-3), 265-302.
- [51] Lin, J., Lee, C., & Liu, Y. J. (2007). IPO auctions and private information. *Journal of Banking and Finance*, 31, 1483-1500.
- [52] Lskavyan, V., Spatareanu, M. (2006). Ownership concentration, market monitoring and performance: Evidence from the UK, the Czech Republic and Poland. *Journal of Applied Economics*, IX(1), 91-104.
- [53] Mandelbrot, B. (1963). The variation of certain speculative prices. *Journal of Business*, 36, 394-419.
- [54] Moghaddam, A.G., Reihanzadeh, L., Gharjagh, M., Foroghi, M., and Akbari, Z. (2014). The Effect of Institutional Investors Ownership on Stock Returns. *Interdisciplinary Journal Of Contemporary Research In Business*, 6 (5).
- [55] Morck, R., Nakamura, M., & Shivdasani, A. (2000). Banks, Ownership Structure, and Firm Value in Japan. *Journal of Business*, 73(4), 539-68.

- [56] Nelson, D.B. (1991). Conditional Heteroskedasticity in Asset Returns: A New Approach. *Econometrica*, 59(2), 347-370.
- [57] Nofsinger, J.R., & Sias, R.W. (1999). Herding and feedback trading by institutional and individual investors. *Journal of Finance*, 54, 2263-2295.
- [58] Parigi, B., & Pelizzon, L. (2006). Diversification and ownership concentration. *Journal of Banking and Finance*, 32(9), 1743-1753.
- [59] Parrino, R., Sias, R., & Starks, L. (2002). Voting with Their Feet: Ownership Changes Around the Time of Forced CEO Turnover. *Journal of Financial Economics*, 68, 3-46.
- [60] Potter, G. (1992). Accounting Earnings Announcements, Institutional Investor Concentration, and Common Stock Returns. *Journal of Accounting Research*, 146-155.
- [61] Rubin, A., & Smith, D. (2009). Institutional Ownership, Volatility and Dividends. *Journal of Banking and Finance*, 33, 627-639.
- [62] Sahut, J.M., Gharbi, S., & Gharbi, H. (2011). Stock Volatility, Institutional Ownership and Analyst Coverage. Bankers Markets and Investors. *Social Science Research Network*.
- [63] Sentana, E. (1995). Quadratic ARCH models. *Review of Economic Studies*, 62, 639-61.
- [64] Sharpe, W.F. (1964). Capital asset prices: a theory of market equilibrium under conditions of market risk. *Journal of Finance*, 19, 425-442.
- [65] Shiller, R. J. (1984). Stock Prices and Social Dynamics. *Brookings Papers on Economic Activity*, II, 457-98.
- [66] Shiller, R.J. (2000). Measuring Bubble Expectations and Investor Confidence. Cowless Foundation, 1(1), 49-60.
- [67] Shleifer, A. (2000). Clarendon Lecture: Inefficient Markets. Oxford University Press.
- [68] Sias, R. (1996). Volatility and the Institutional Investor. *Financial Analysts Journal*, 52, 13-20.
- [69] Sias, R., Starks, L., & Titman, S. (2002). The Price Impact of Institutional Trading. Working paper, Washington State University and University of Texas.
- [70] Sias, R. (2004). Institutional herding. *Review of Financial Studies*, 17, 165-206.
- [71] Sias, R., Starks, L. T., & Titman, S. (2006). The price impact of institutional trading. *Journal of Business*, 79, 2869-2910.
- [72] Stiglitz, J. E. (1994). *Whither Socialism?* Cambridge, Massachusetts: MIT Press.
- [73] Teng-Ching, H., Ching-Chih, W., and Bing-Huei, L. (2016). Institutional herding and risk-return relationship. *Journal of Business Research*, 69 (6), 2073 – 2080.
- [74] Wermers, R. (1999). Mutual Fund Trading and the Impact on Stock Prices. *Journal of Finance*, 54, 581-622.
- [75] Wermers, R. (2000). Mutual Fund Performance: An Empirical Decomposition into Stock-Picking Talent, Style, Transaction Costs, and Expenses. *Journal of Finance*, 5, 1655-1695.
- [76] Werner, T., & Stapf, J. (2003). *How wacky is the DAX? The changing structure of German stock market volatility* (No. 2003, 18). Discussion paper Series 1/Volkswirtschaftliches Forschungszentrum der Deutschen Bundesbank.
- [77] West, K. (1988). Dividend innovations and stock price volatility. *Econometrica*, 56, 37-61.
- [78] Zakoian, J.M. (1994). Threshold Heteroskedastic Models. *Journal of Economic Dynamics and Control*, 18, 931- 955.
- [79] Zeytinoglu, E., Akarim, Y.D., & Celik, S. (2012). The impact of market-based ratios on stock returns: The evidence from insurance sector in Turkey. *International Research Journal of Finance and Economics*, 84, 41-48.